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(54) Abstract Title
Security Device for Information Storage Media

(57) Apparatus (1) comprising a releasable security member (8), retained in a locked position by a snap-fit mechanism actuated as the security member is fitted to the apparatus. Independent claims define the security member (8) as being insertable into the apparatus to inhibit the removal of the storage media from the apparatus by inhibiting access to the storage media by locking the apparatus in a closed configuration and/or by locking the storage media to the apparatus. The apparatus is adapted by having one or more slots (12) (24) therein to receive part of the security member therein and the security member has at least one projection (9A) (10A) for insertion into the apparatus ie through a slot (12)(24). Modification to the apparatus to enable it to receive a security member are described, as well as different types of security members. Apparatus such as a key for the release of the security member from the apparatus holding the storage media are also described.

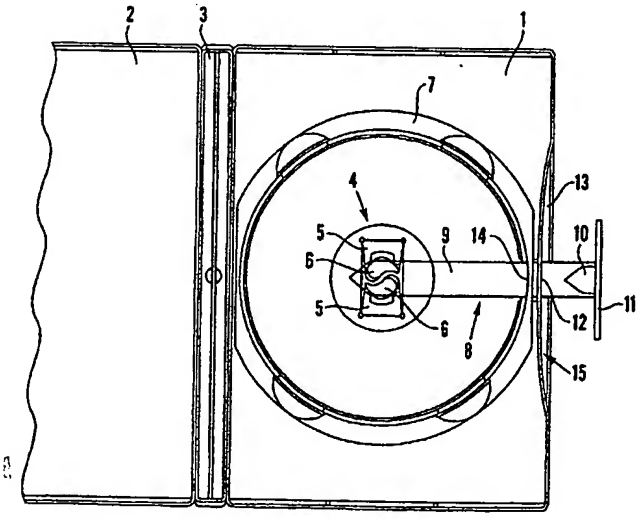

Fig.1

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

This print takes account of replacement documents submitted after the date of filing to enable the application to comply with the formal requirements of the Patents Rules 1995

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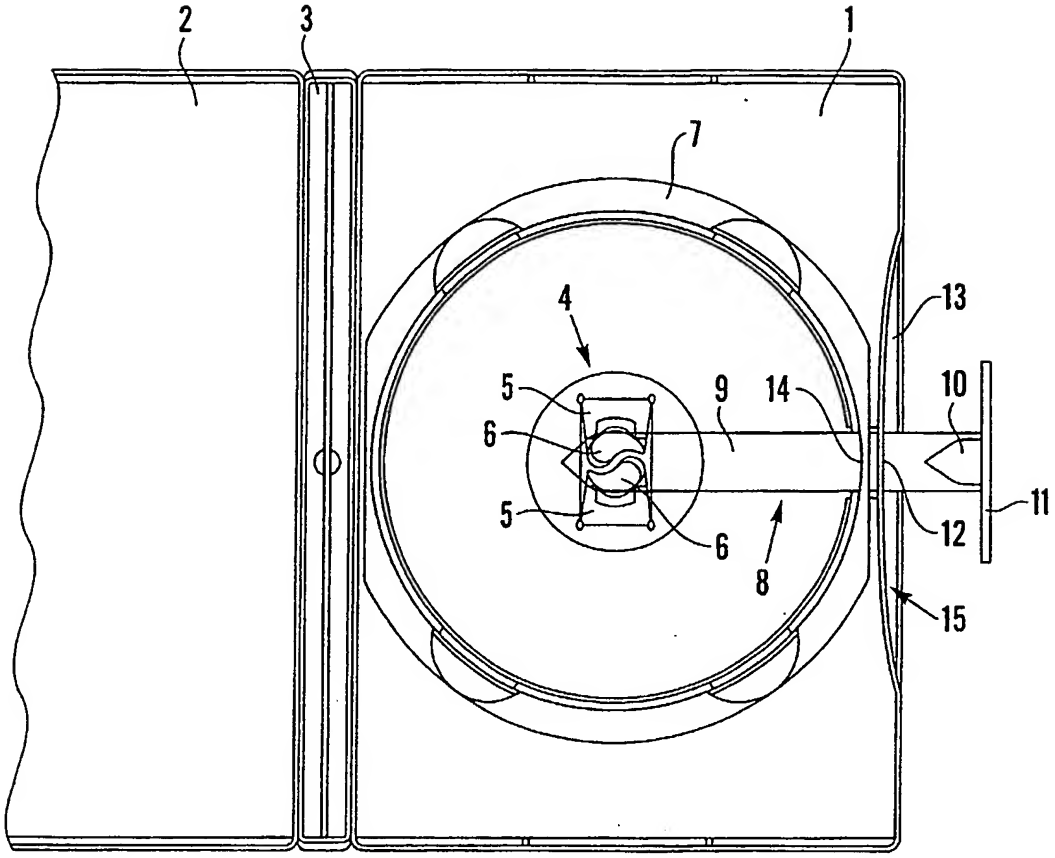


Fig. 1

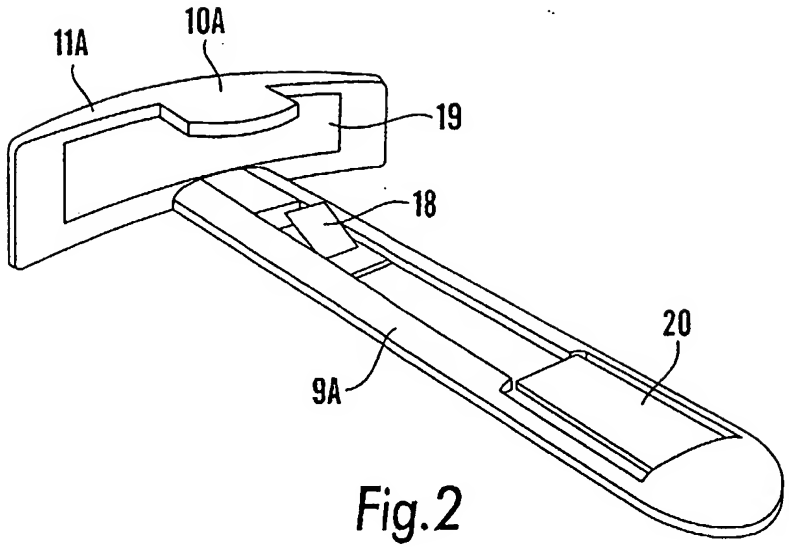


Fig.2

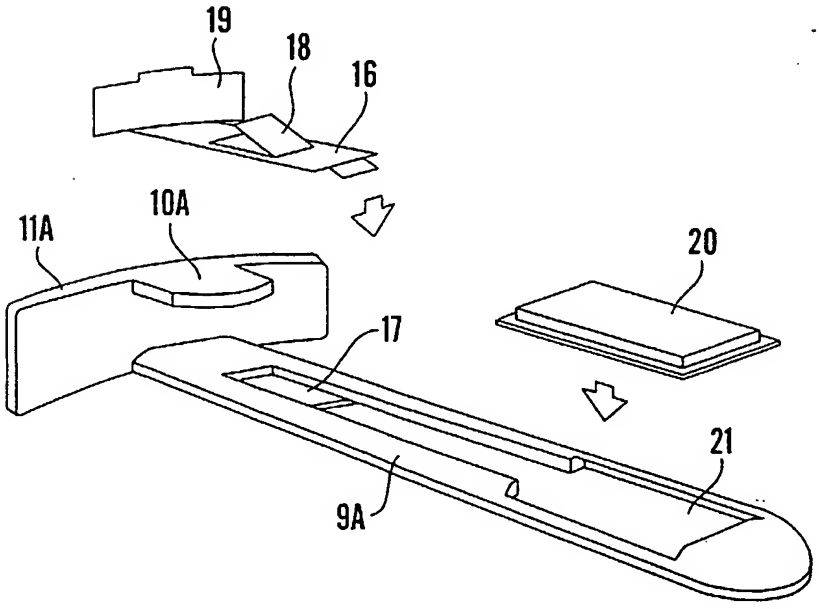


Fig.3

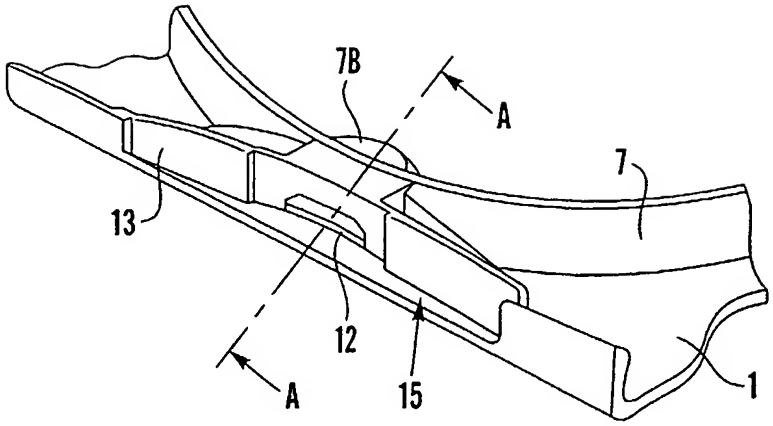


Fig.4

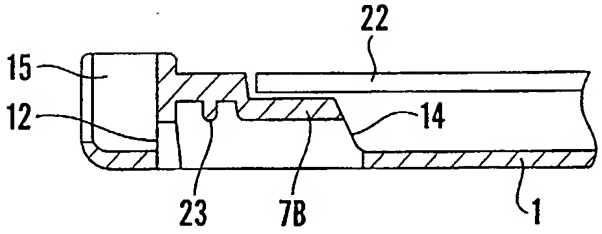


Fig.5

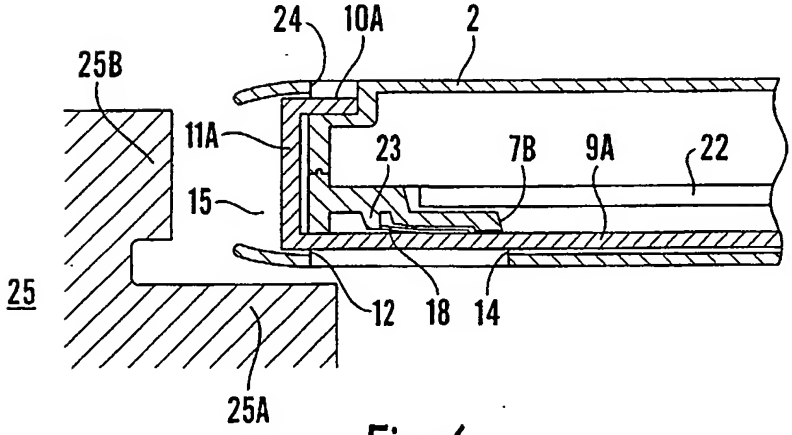


Fig.6

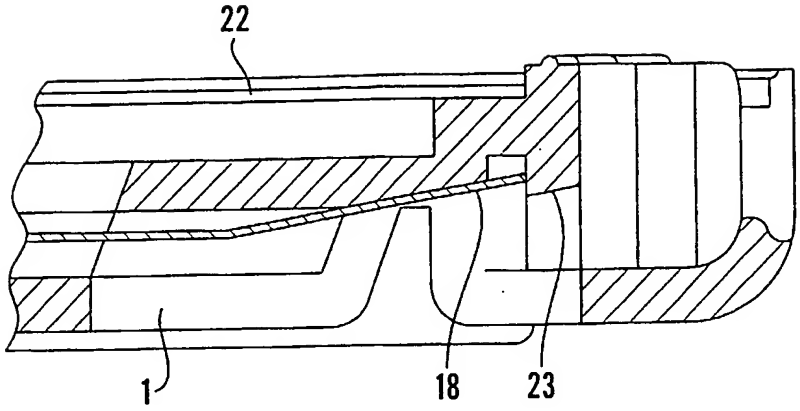
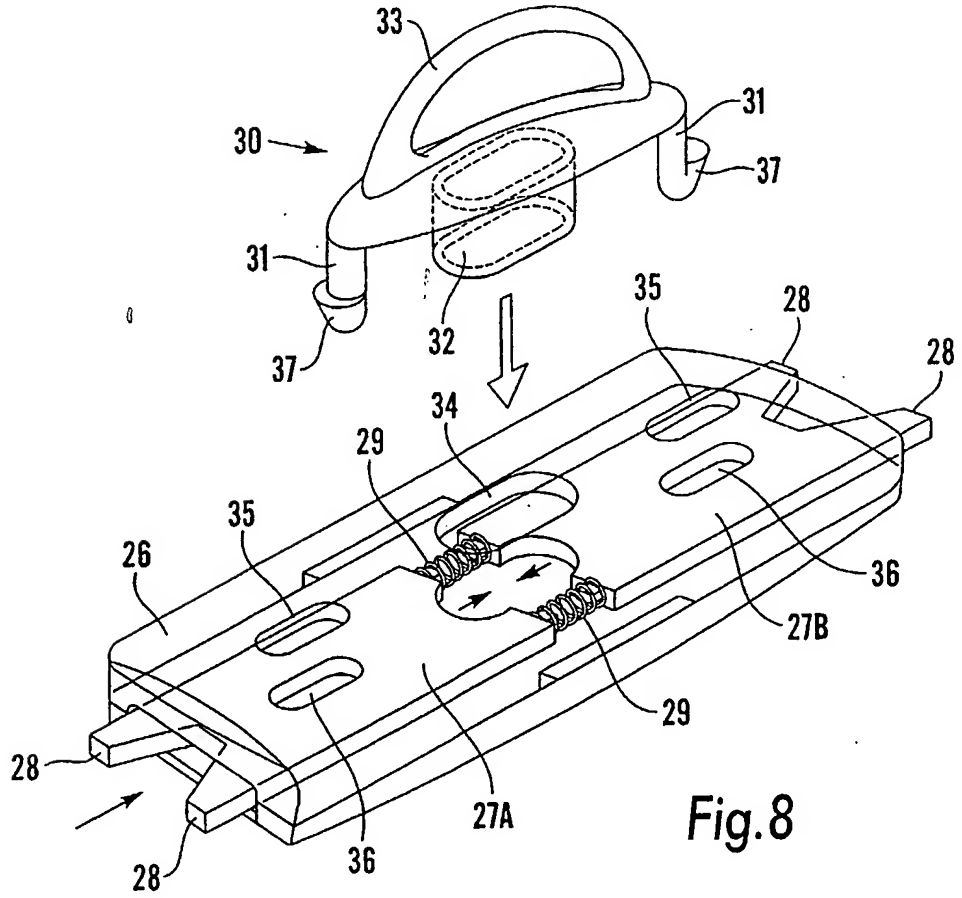

22
1
18
23

Fig.7


33
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27B
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36
27A

Fig.8

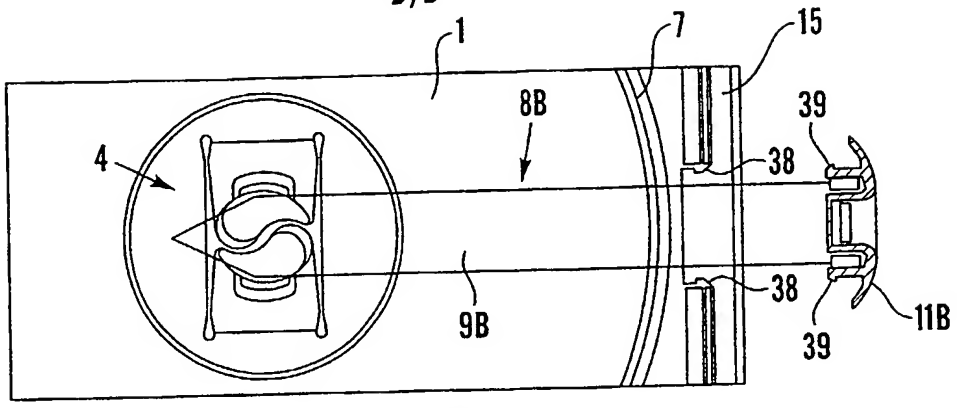

Fig.9A

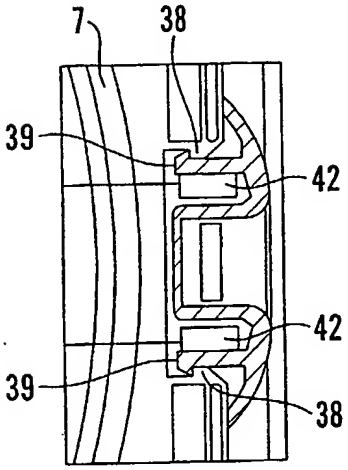

Fig.9B

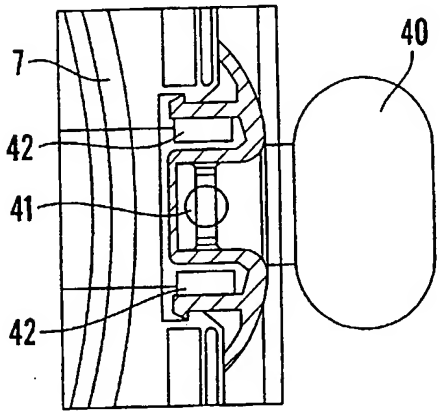

Fig.9C

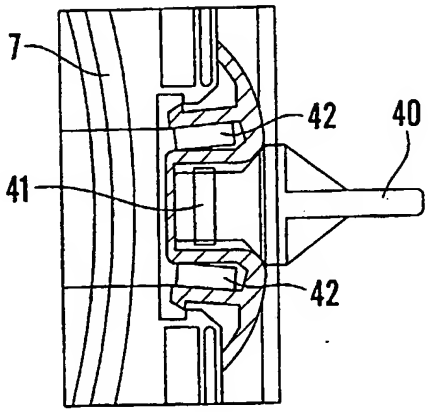

Fig.9D

SECURITY DEVICE FOR INFORMATION STORAGE MEDIA

This invention relates to apparatus and cases for holding and enclosing information storage media and, in particular, to security devices which can be attached to the apparatus or cases to prevent or deter theft. It also relates to release devices for releasing such security devices.

The invention is particularly concerned with apparatus and cases for holding disk shaped data carriers, for example CDs and DVDs, but may be applicable to other forms of information storage media.

Various types of containers are known for holding CDs or DVDs. Many CDs are housed in so called "jewel boxes" which comprise a plastic tray on which the CD is mounted and the tray is installed within a clear plastic box comprising a base portion and a lid portion hinged thereto. More recently there have been advances in the technology, particularly for housing DVDs, which are described in US5788068 and WO97/41563, the disclosures of which are incorporated herein. Following the success of these products, a variety of other types of case have been introduced into the market.

A problem encountered with such known apparatus is the removal and theft of a CD or DVD from the apparatus within a store selling such products. The disk holder is usually provided within a container which is provided with a security tag which triggers an alarm if the container is taken out of the store without the tag first being removed or rendered inactive by staff in the store. The container may also be provided with a clear plastic wrapper which has to be removed before the container can be opened. However, it has been found that thieves are able to slit the wrapper along an edge of the container, e.g. the bottom edge, and release the CD or DVD from the disk holder within the container by actuating the release mechanism thereof by pressing this through a side wall of the container. They are then able to remove the CD or DVD from the container by compressing the container so that the side

walls bow forming a gap between the two halves thereof so the CD or DVD can be slid out through the slit made in the wrapper. An experienced thief is able to do this whilst pretending to examine the product and slip the CD or DVD into a coat pocket unobserved. They then leave the empty container on the shelf and leave the store with the CD or DVD in their pocket without triggering the alarm system.

It is also found that thieves remove or disable the security tag provided on the product.

For these reasons, many stores only display empty containers and when a customer has made a selection, the staff retrieve the relevant CD or DVD from a secure cupboard or safe and place it in the container for the customer. However, this takes additional time and requires an additional secure storage place for the CDs and DVDs. It also increases the risk that the wrong CD or DVD may be put in the container, especially if the staff are busy. The stores would also prefer for the disks to be held within the boxes on display as this is more appealing to a potential customer than an empty box (and has been shown to significantly increase sales). There is therefore a desire within the trade to be able to display CD or DVD containers with the relevant CD or DVD already held therein; such a practice being known as 'live' storage within the trade.

Prior art devices for increasing the security of such containers tend to be bulky and expensive. One known form of device comprises a "keeper" in the form of a robust casing or frame which fits around, or partially around, the exterior of the container and is locked in a closed position so it is impossible to open the container without first unlocking and removing the keeper. Such keepers are difficult to handle, substantially increase the size of the product (often increasing the size of the producer by 30% or more and so occupying more shelf space). They also detract from the aesthetics of the product, may conceal some of the artwork on the exterior of the container and considerably reduce the attractiveness of the product to a potential customer.

WO97/02569 describes another form of security device in which one edge of the container is inserted into a channel shaped keeper which fits over the edge of the product and extends at least part way over opposite external faces of the container to prevent the container from being opened. Such a keeper is still a relatively complex and expensive item, which adds significantly to the external dimensions of the container, reduces the attractiveness of the container to a potential customer and prevents the container from being stood on its bottom edge.

One of the aims of the present invention is thus to enable the security of a live storage container housing a disk-shaped carrier such as a CD or DVD to be improved.

Thus, according to a first aspect of the present invention, there is provided apparatus for holding information storage media comprising a releasable security member for inhibiting removal of the storage media from the apparatus, the locking member being retained in a locked position by a snap-fit mechanism actuated as the security member is fitted to the apparatus.

According to a second aspect of the invention there is provided apparatus for holding information storage media comprising a base portion having a holding member to hold the information storage media; a releasable security member insertable into the apparatus to inhibit operation of the holding member; and removable therefrom only following release of a locking device.

According to a third aspect of the invention there is provided apparatus for holding information storage media comprising a security tag and a releasable security member for inhibiting removal of the storage media and removal of the security tag from the apparatus.

According to a fourth aspect of the invention there is provided apparatus for holding information storage media comprising a base portion adapted to releasably hold the information storage media; and a releasable security member comprising at least one arm insertable into the apparatus and a substantially flat part which lies adjacent and

substantially parallel with an external face of the apparatus when the arm is positioned within the apparatus.

According to a fifth aspect of the invention there is provided a case for enclosing information storage media comprising a base portion having a holding member to hold the information storage media; a lid portion hinged to the base portion and movable between open and closed positions; and a releasable security member insertable into the case to inhibit operation of the holding member and to hold the case closed.

According to a sixth aspect of the invention there is provided a case for enclosing information storage media comprising a base portion adapted to releasably hold the information storage media; a lid portion hinged to the base portion and movable between open and closed positions; a recess in one edge of the case, the base portion having a first engagement member within the recess and the lid portion having a second engagement member within the recess; and a releasable security member engageable with both the first and second engagement members to hold the case closed.

According to a seventh aspect of the invention there is provided a case for enclosing information storage media comprising a base portion adapted to releasably hold the information storage media; a lid portion movable between an open and closed position; a recess in an outer wall of the casing; a security tag; and a releasable security member which fits within said recess and inhibits removal of the security tag from the case.

According to an eighth aspect of the invention there is provided a case for enclosing information storage media comprising a base portion adapted to releasably hold the information storage media; a lid portion and a hinge portion joining the base portion to the lid portion and a releasable security member slidable through an aperture in an edge of the case opposite the hinge portion to hold the case closed.

According to a ninth aspect of the invention there is provided a case for enclosing information storage media comprising a base portion having a holding member to hold the information storage media; a lid portion movable between open and closed positions; a wrapping around the case; and a releasable security member insertable through the wrapping into the case to inhibit operation of the holding member.

According to a tenth aspect of the invention there is provided a case for enclosing information storage media comprising a base portion having a holding member to hold the information storage media; a lid portion movable between open and closed positions; a releasable security member within the case to inhibit operation of the holding member and removable therefrom only when the case is open.

According to an eleventh aspect of the invention there is provided a case for enclosing information storage media comprising a base portion, and a lid portion attached to the base portion by a hinge portion, the base and lid portion being shaped to provide a recess in an edge of the case opposite the hinge portion when in the closed position, and a locking device insertable within said recess to engage both the base portion and the lid portion to releasably hold them in the closed position.

According to a twelfth aspect of the invention there is provided apparatus for holding information storage media comprising a base portion; a security tag; a releasable security member insertable within the base portion; and a locking device for locking the security
member to the base portion, wherein access to the security tag is inhibited until the locking
device is released to permit the security member to be withdrawn, or at least partially withdrawn, from the base portion.

According to a thirteenth aspect of the invention there is provided a magnetic release device for use with apparatus or a case as above having a releasable security member and a locking device for locking the security member to the apparatus or case.

Preferred and optional features of the invention will be apparent from the following description and from the subsidiary claims of the specification.

The invention will now be further described, merely by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a plan view of apparatus for holding a DVD together with a security device according to a first embodiment of the invention;

Figure 2 is a perspective view of a second embodiment of a security device, similar to that shown in Figure 1;

Figure 3 is a perspective view illustrating the components of the security device shown in Figure 2;

Figure 4 is a perspective view of part of apparatus similar to that of Figure 1 showing an aperture into which the security device of Figures 2 and 3 fits;

Figure 5 is a cross sectional view taken on line A-A of Figure 4;

Figure 6 is a similar cross-sectional view of the apparatus when closed with the security device in place;

Figure 7 is an enlarged view of part of Figure 5 (viewed in the opposite direction);

Figure 8 shows a perspective view of a further embodiment of a releasable security member which fits within a recess in the edge of a case; and

Figure 9A shows a plan view of part of apparatus similar to that shown in Figure 1 with a further embodiment of a releasable security member partially inserted therein with the head thereof shown in cross section; Figure 9B is an enlarged view of the head when the member is fully inserted and Figures 9C and 9D illustrate the use of a key to release the member from the case.

The apparatus for holding a disk shaped information storage media such as a DVD shown in Figure 1 comprises a base portion 1 and a lid portion 2 (only part of which is shown) connected by a hinge portion 3. A disk engaging mechanism 4 is provided on the base portion 12 for releasably engaging the central aperture of a DVD or CD. The mechanism preferably comprises at least one cantilevered arm 5 with a button-like member 6 at the radially inner end thereof. The example shown comprises two cantilevered arms each having a button portion at its inner end.

An upstand 7 is provided on the base portion so as to extend around the periphery of a disk mounted in the apparatus.

The apparatus operates in the manner described in US5788068 and WO97/41563 referred to above. This will not be described further here other than to note that to release a disk from the apparatus, the button portions 6 and the arms 5 on which they are provided must be depressed. Accordingly, by inserting a security device 8 beneath the arms 5 when the disk is in place, the disk can be locked on the button 6. This is described further in the UK patent application No. 0024890.6 (Publication No.), the disclosure of which is also incorporated herein.

The security device 8 shown is Figure 1 comprises a first long arm 9 and a second, shorter arm 10 the two arms being connected to a head 11. The two arms 9,10 and the head 11 each comprises a flat strip of a relatively tough plastics material, e.g. nylon ™ or ABS each being approximately 8-12 mm wide and 1.0 to 1.5 mm thick.

The long arm passes 9 through a slot 12 in a side wall 13 of the base portion and through a slot 14 in the upstand 7 so that it can be extend across the base portion 1 and be fitted beneath he arms 5 in order to prevent operation of the disk release mechanism 4 as described in GB0024890.6.

Figure 1 shows the security device 8 partially inserted in the apparatus. Once the lid 2 of the case is moved to the closed position, the security device 8 is pushed further in the case so that the head 11 lies within a recess 15 in the edge of the case (this recess being provided to facilitate finger access to the opening edge of the case) and the shorter arm 10 passes through a slot in the edge of the lid portion 2 so as to hold the lid 2 in the closed position, as will be described further below.

The security device 8 can be locked in place in a variety of ways depending upon the level of security required. In a simple form, requiring only a low level of security, the security device 8 may be inserted into the case to lock the disk release mechanism 8 and to hold the case closed and the case then provided with a wrapping (not shown), e.g. a clear plastics sleeve or shrink wrapping, passing over the recess 15 so the device 8 can only be removed following breakage or removal of this wrapping.

In addition, a conventional security tag (not shown) can be mounted on the longer arm 9 (or the shorter arm 10 if it is big enough) so it cannot be removed without withdrawing the device 8 from the case. Alternatively, the security tag can be mounted on the inner face of the head 11 or positioned such that it is sandwiched between the head 11 and the side wall 13 of the case when the device 8 is fully inserted within the case so, again, it cannot be removed without withdrawing the device 8 from the case.

Figures 2 and 3 show another form of the security device 8A similar to that shown in Figure 1. The device 8A again has a long arm 9A, a short arm 10A and a head 11A. In addition, it is provided with a pressed steel insert 16 which fits within a groove 17 provided in the long arm 9A and against an inner surface of the head 11A. The insert 16 comprises a resilient projection in the form of a spring arm 18, which projects upwardly from the arm 9A with its free end towards the head 11, and an end piece 19

which lies against the inner surface of the head 11 and fits between the long and short arms 9A, 10A.

A security tag 20, e.g. a Sensormatic™ Ultra-max label, is mounted within a recess 21 provided in the longer arm 9A and may be secured therein by adhesive. The term "security tag" is used herein to refer to any form of component which triggers an alarm if taken past a sensor.

The device 8A fits into the case in a similar manner to that shown in Figure 1 so the long arm 9A fits beneath the arms 5 to lock the disk release mechanism 4. In this case, the security tag 20 is positioned on the arm 9A so that it is located beneath the disk held in the apparatus and beneath the arms 5.

The function of the steel insert 16 will be described below in relation to Figures 4-6.

Figure 4 shows an enlarged view of the edge 13 of the base portion and the recess 15 therein and shows the slot 12 through which the long arm 9A of the device 8A is inserted.

Figure 5 shows a cross sectional view taken on line A-A of Figure 5 and shows the slot 12 and the slot 14 through the upstand 7. It also shows part of a disk 22 held on the apparatus. The underside of the upstand 7 is formed with a substantially rigid projection 23 which projects downwardly towards the base of the base portion 1, the purpose of which will be described below.

Figure 6 shows a cross-section corresponding to that of Figure 5 when the lid portion 2 has been moved to the closed position so as to fit against the lower portion 1 and the security device 8A is inserted into the case. The longer arm 9A of the device 8A is slid through the slots 12 and 14 until the distal end of spring arm 18 passes the projection 23. The resilience of the spring arm 18 then causes the distal end of thereof to engage a side of the projection 23. The device 8A is thus locked within the

case and cannot be slid back out without disengaging the spring arm 18 from the projection 23.

As shown in Figure 6, the shorter arm 10A of the device 8A fits within a slot 24 in the lid portion 2 and thus holds the lid 2 in the closed position against the base portion 1. The case cannot thus be opened until the spring arm 18 is disengaged from the projection 23 to enable the device 8A to be slid outwards until the shorter arm 10A moves out of engagement with the lid portion 2 to allow the lid portion 2 to be moved away from the base portion 1. Furthermore, whilst the device 8A is in the position shown in Figure 6, the long arm 9A prevents the disk from being released from the disk engaging mechanism as described above and in GB0024890.6.

The spring arm 18 is inaccessible from the exterior of the case so making it difficult, if not impossible, for a potential thief to open the case, to remove the security tag 20 or remove the disk 22 from the case.

In order to release the device 8A from the case, the case is brought up to a magnetic release device 25 which is shaped so as to align a first part 25A adjacent the case in alignment with the spring arm 18 so as to draw the arm 18 out of engagement within the projection 23 and to align a second part 25B with the head 11A of the device so the magnetic pull on the end piece 10 of the metal insert 16 withdraws the device 8A from the case at least far enough to prevent re-engagement of the spring arm 18 with the projection 23. The device 8A can then be withdrawn from the case.

Prior to the spring arm 18 being drawn away from the projection 23, the device 8A is preferably pushed slightly further into the case, e.g. by a distance of up to 0.5mm, to move the tip of the arm 18 out of engagement with the side of the projection 23 so the arm 18 is free to move without the tip of the arm riding over or becoming stuck on the side face of the projection 23. This small movement is conveniently allowed for by making the end piece 19 of the metal insert slightly curved so that pressure on the head 11A towards the case, flattens the end of piece 19 against the side face of the case. When this pressure is released, the end piece 19 springs back to its curved form and the movement of the arm 9A may be sufficient to move the arm 9A

outwards a sufficient distance to prevent the spring arm 18 re-engaging the side face of the projection 23 when the force drawing the arm 18 away from the projection 23 is released.

The magnetic release device 25 thus applies a first magnetic force in a first direction to release the locking device formed by the spring arm 18 and projection 23 and a second magnetic force in a second direction to withdraw the security device from the case at least far enough to prevent re-engagement of the locking device when it is no longer held in a release position by the first magnetic force. The security device can then be withdrawn from the case manually or the second magnetic force may be used to pull it out of the case.

The spring arm 18 and projection 23 thus form a locking mechanism for locking the security device 8A in the case.

The spring arm can also be made of a non-magnetic material but arranged to be moved by a magnetic component mounted thereon or adjacent thereto, e.g. formed of steel or a magnet.

The magnetic release device 25 can be provided adjacent a sales till in a store for use only by sales staff. Once the security device 8A has been withdrawn, the case and the disk held therein can be taken from the store by a customer without triggering an alarm. The security device 8A can then be re-used in another case.

The provision of a metal or magnetic component the position of which can be altered by application of a magnetic force thus enables the security member to be removed.

Figure 7 shows an enlarged view similar to that of Figure 5 (but from the opposite direction), showing the spring arm 18 engaged with the projection 23 (which in this

case is provided at the outer edge of the underside of the upstand 7 rather than in the position shown in Figure 6).

Figure 8 shows a perspective view of another embodiment of a releasable security device according to another aspect of the invention. This comprises a body 26 which fits within the finger recess 15 of a case and which has two longitudinally slidable metal plates 27A and 27B therein, each provided with two prongs 28 at their outer ends. The plates 27A and 27B are urged apart by springs 29 so the prongs 28 project from the ends of the body 26. The figure also shows a key 30 comprising two legs 31, a projection housing a magnet 32 and a handle 33.

When the key is inserted in an aperture 34 in the centre of the body 26, the magnet 32 is positioned between the metal plates 27A, 27B and draws them inwards against the action of the springs 29 so the prongs 28 are retracted. The body can then be inserted into the finger recess 15 of a case. When the key 30 is removed, the prongs 28 project from the body 26 and engage in apertures provided in the lid and base portions 1 and 2 at each end of the finger recess 15. The prongs 28 thus engage the base and lid portions 1, 2 to hold the case closed.

The legs 31 of the key 30 fit within apertures 25 and 36 in the body 26 and the plates 27A, 27B and are designed so that when the plates 27A, 27B are retracted by the magnet 32, detents 37 on the legs 31 mechanically engage the plates 27A, 27B so the key can be used to lift the security device out of the finger recess 15.

The body 26 of the security device preferably substantially fills the finger recess 15 and the outer surface of the body 26 is preferably substantially co-planar with the edge of the case so the edge of the case with the security device is place, has a smooth outer surface.

This type of security device may be used alone to lock the case closed but may also be used in conjunction with the other security functions and components described herein.

As mentioned above, the security device may be inserted into the case and a wrapper then provided around the case. However, when a locking mechanism such as that described above (in relation to Figs 1-7, but not that shown in Fig 8) is used, the security device 8A may be inserted through the wrapper. To this end, the distal ends of the long and short arms 9A and 10A are pointed so they can pierce the wrapper. When the security device is fully inserted into the case, the head 11A covers the pierced areas of the wrapper. Also, the head 11A is positioned within the recess 15 and so locally distorts the wrapper so that it is pressed into the recess 15.

Cases containing a disk and which have a wrapper can thus be delivered to the store in the usual manner. The store then inserts a security device within each case (or they can be pre-installed by the packers and replicators).

It will be appreciated that the head 11A lies adjacent and substantially parallel to the edge 13 of the case and, preferably, is positioned within the recess 15 so the security device 8A does not alter the external dimensions of the product. This also reduces the accessibility of the head 11A so making it more difficult to grasp if an attempt is made to try to pull it out although, in cases in which the security device is not designed to hold the case closed, the head 11A does not prevent access to the finger recess 15 so a user can still easily open the case. Furthermore, the security device 8A does not detract from the aesthetics of the product or the handling of the product by the consumer or automated packing machines.

The spring 18 and projection 23 provide a snap-fit mechanism which is activated as the security device 8A is fitted to the apparatus. Other forms of mechanism may be used to provide a similar function, i.e. allowing insertion of the security device but inhibiting removal thereof, once it reaches a given position. Insertion of the security device 8A thus inhibits removal of the disk from the apparatus, the security device automatically being locked in place when fitted to the apparatus. Such mechanisms typically comprise first and second parts arranged such that the second part can pass the first part when the member is inserted but engagement between the first and second parts prevents the second part moving past the first part in the opposite direction.

As indicated above, the spring arm 18 and projection 23 form a locking mechanism for the security device 8A so the latter can only be removed from the apparatus following release of the locking mechanism. Other forms of locking mechanism providing a similar function may be provided. Such locking devices may be released by application of a magnetic force but arrangements may also be used which require application of a special tool or key to release the device. For higher security applications the release tool may be provided with a code which has to match a code within the locking device in order to release the device.

Many different arrangements of parts which co-operate in this way can be envisaged. In a preferred arrangement, the case may be provided with one or more fixed detents having a surface inclined to the direction of insertion of the security member on their outer side and a surface perpendicular to said direction of insertion on their inner side and the security member has one or more detents having an inclined surface on the leading side of the detent and a surface perpendicular to the direction of insertion on the other side thereof. Thus, when the security member is inserted into the case, the inclined surfaces of the two sets of detents ride over each other causing lateral movement of detents carried by the security member so they can pass each other. Once they have passed each other, the detents on the security member move back to their original lateral position so that withdrawal of the security member is prevented by engagement of the surfaces of the respective detents perpendicular to the direction of insertion.

This engagement of the detents may be released by application of a magnetic force which moves the detents on the security member laterally (either directly or by movement of a metal or magnetic component which causes or permits this lateral movement to occur) and/or by means of a specially shaped tool or key which when, applied to the security member, moves these detents laterally.

The positions of the detents may be reversed, i.e. with the substantially rigid detents provided on the security member and the laterally moveable detents provided on the case.

Detents having a similar function can be provided in many other shapes and in many other arrangements.

One example of such an arrangement is shown in Figures 9A to 9D, which show plan views of part of a case similar to that of Figure 1 and of a security member 8B inserted therein with the head 11B of the security member shown in cross-section. Figure 9A shows the security member 8B only partially inserted in the case before a locking device in the head 11B engages with the case. The case is provided with fixed detents 38 and the head with laterally moveable detents 39. Figure 9B shows an enlarged view of the head 11B engaged with the case after the detents 39 have moved past the detents 38 so the two sets of detents are engaged with each other to inhibit removal of the security member 8B from the case. Figure 9C shows a key 40 inserted into the head 11B. The key 40 is then rotated through 90o to align a magnet 41 therein with magnets 42 attached to the laterally moveable detents 39 s the detents 39 are drawn inwards to disengage from the detents 38 so the security member 8B can be withdrawn from the case. Preferably, the key 40 and head 11B are arranged so that they mechanically engage with each other in the orientation shown in Figure 9D so the key 40 can then be used to pull the security member 8B out of the case.

The apparatus described in relation to Figures 2-6 provides the following security functions:

A) it inhibits operation of the disk engaging means mechanism 4,
B) it locks the disk onto the base portion
C) it holds the case closed, and
D) it prevents access to the security tag 20.

The apparatus can be modified, e.g. by omission of the shorter arm 10A and/or omission of the security tag 20 and/or by shortening of the long arm 9A, to provide only one or any combination of two of these security features as required.

In one arrangement, the security device may be designed to lock the disk on the apparatus but to allow the case to be opened so a potential container can view the contents of the case. The disk is locked to the base portion so cannot be removed from the case until the locking device is released. The security device in this arrangement may also be used to prevent access to a security tag; e.g. by mounting the tag on the underside of the security device, under the disk engaging mechanism or under the disk.

In another arrangement, the locking device may be designed to inhibit removal of the disk and inhibit removal of a security tag from the apparatus, by positioning the tag so it is inaccessible until the locking device is removed, e.g. beneath the button 6, on the underside of the arm 9A, on the inner surface of the head 11A or on the base portion 1 in a position covered by the disk when the disk is mounted on the button 6.

The use of the lockable security device to inhibit access to security tag provides significant advantages. By making the tag inaccessible until the security device is released, a potential thief is prevented from removing or tampering with the device. Furthermore, if the tag is mounted on the security device r becomes free on removal of the security device, it can be retained by the store for re-use. This helps reduce a problem due to tags being left of products or carried into another store by reducing the number of tags in circulation outside the store. Furthermore, if the tags are re-usable rather than being disposable, the stored can invest in higher specification tags providing higher levels of security and/or more sophisticated functions.

In some cases, it may be sufficient simply to provide a lockable security device to inhibit access to a security tag. The tag may be mounted on and/or concealed by the security device itself or located in a position to which access is inhibited, e.g. it may be located under the disk, until removed, or partial removal, of the security device once the device has been unlocked.

The locking device 8 described above comprises two arms 9,10 each insertable into the apparatus. However, as mentioned, one of these arms may be omitted if the device is not designed to hold the case closed. The or each of the arms 9, 10 extend

from the head 11 which comprises a substantially flat component. The head 11 is arranged to lie adjacent and substantially parallel to an external face of the apparatus when the or each arm is positioned within the apparatus. The device thus has no significant impact on the overall external dimensions of the product. The head 11 may, in some devices, lie against an external face of the case and so add to the width of the case by the thickness of the head 11 but, preferably, the head 11 is positioned within a recess so that it is co-planar with an external face of the case or recessed beneath said face.

As discussed, the security device 8 holds the case closed by means of the engagement of one arm 9 with the base portion 1 and engagement of the other arm 10 with the lid portion 2, the two arms being joined by the head portion 11. This engagement is effected by location of the arms within slots in the base and lid portions. Other forms of engagement means can, however, be used. Preferably, the engagement means are located within a recess such as the finger recess 15 provided in the edge of the box opposite the hinge portion 3, so they do not add to the dimensions of the case and so they can be concealed. Furthermore, by providing the engagement means in such a recess, the locking device may also be designed to fit within the recess so it does not add to the external dimensions of the case.

The device described above provides a releasable security member which fits within a recess in an outer wall of the case and which can be used to inhibit access to a security tag. These functions may be provided in conjunction with the other features described above or provided on their own depending on the security functions required.

It will be appreciated that the security member 8 described above is slidable through an aperture, e.g. the slot 12, in an edge of the case opposite the hinge portion 3. The security member is thus located in the opening edge of the case opposite the hinge where it is most effective in holding the case closed. A user normally opens such a case by prising apart the base and lid portions along the edge opposite the hinge as this give maximum leverage and both portions can be easily engaged by the user's fingers or thumbs. It is for this reason, the finger recess 15 is provided in this

position. The security member 8 being inserted in this edge thus holds the case closed at the point where such opening forces would normally be applied. It can also be designed to inhibit access to the edges of the base and lid portion where they are normally prised apart. Location of the security member in this edge also enables the security member 8 to be made small particularly if it is not designed to extend to the disk engaging mechanism 4, but even if it also provides this function, this is the shortest route to the disk release mechanism (for a rectangular DVD box of the type illustrated). The security member preferably slides through an aperture in the edge of the case in a direction towards the hinge portion 3 .

As discussed above, a wrapping, such as conventionally used around a CD or DVD case, is preferably provided around the case. The locking member described is designed to be insertable through the wrapping and to inhibit operation of the disk engaging mechanism 4. All the advantages of being able to lock the disk to the case as described above and in GB0024890.6 can thus be achieved by simply inserting the security member into the case, even after the disk has been mounted in the case, and the case closed and sealed with a wrapper (these functions normally be performed by a packing company or disk replicator). There is therefore no need to modify the automated packing lines.

The modification to the known CD/DVD boxes to enable them to be used with the security member described above are minimal or no modification may be required. In the preferred embodiment described above, the moulding of the case is modified to provide the apertures 12 and/or 14 and the projection 23. However, other locking devices may be used which use existing features of the case without any need for modification apart from an aperture to allow the device to be inserted from outside the upstand 7 and/or case to reach the disk engaging mechanism 4 or apertures in the finger recess to provide engagement with the base portion 1 and lid portion 2.

In a further such arrangement, an arm such as the arm 9 described herein, may be inserted within the case from a position outside the upstand 7. The security member can thus only be accessed and released when the case is open. Depending on the level of security required, the case may be held closed by a wrapper as described

above or some other form of locking device, such as those described above (or other types) may be provided to lock the case in a closed position.

A release device is required to release a security member which is locked in place by a locking device. This may comprise apparatus such as that described in relation to Figure 6 which may be located adjacent a till in a store and to which the locked case is offered in order to release the security member. Alternatively, the release device may be in the form of a key which is applied to the case to unlock the security member. Both types of device can take a wide variety of forms and may use mechanical engagement and/or magnetic forces to unlock the locking device. The same device preferably also assists in withdrawal of the security member from the case.

The embodiment illustrated locks the disk on the base portion by preventing activation of the disk engaging mechanism, e.g. by preventing the arms thereof from being depressed. Other ways of locking the disk relative to the base portion are envisaged.

The releasable security member may, for example, comprise one or more arms or parts which lie over the disk so as to prevent the disk from being lifted away from the base portion. Such arms may extend part way across the disk or may extend from one side of the case to the opposite side thereof. More than one releasable security member may also be provided, e.g. inserted through opposite edges of the case. The releasable locking member also may not itself lock the disk on the base portion but may be used to activate a mechanism within the case which performs this function.

It will be appreciated from the above that this invention can be provided in various different forms. Many of the individual features and combinations of features referred to above are believed to be novel. The invention is thus not limited to the specific combinations of features or the embodiments described but extends to cover each of the principles described or combinations thereof.

Whilst the invention has been described in relation to a disk holder of the type shown in the drawings, it will be appreciated that such disk holders can take a variety of forms and many aspects of the invention can be used with other types of disk holder.

Furthermore, as indicated in the introduction, aspects of the invention are also applicable to apparatus or case for holding other types of information storage media.

CLAIMS

1. Apparatus for holding information storage media comprising a releasable security member for inhibiting removal of the storage media from the apparatus, the security member being retained in a locked position by a snap-fit mechanism actuated as the security member is fitted to the apparatus.

2. Apparatus for holding information storage media comprising a base portion having a holding member to hold the information storage media; a releasable security member insertable into the apparatus to inhibit operation of the holding member; and removable therefrom only following release of a locking device.

3. Apparatus for holding information storage media comprising a security tag and a releasable security member for inhibiting removal of the storage media and removal of the security tag from the apparatus.

4. Apparatus for holding information storage media comprising a base portion adapted to releasably hold the information storage media; and a releasable security member comprising at least one arm insertable into the apparatus and a head part which lies adjacent an external face of the apparatus when the arm is positioned within the apparatus.

5. A case for enclosing information storage media comprising a base portion having a holding member to hold the information storage media; a lid portion hinged to the base portion and movable between open and closed positions; and a releasable security member insertable into the case to inhibit operation of the holding member and to hold the case closed.

6. A case for enclosing information storage media comprising a base portion adapted to releasably hold the information storage media; a lid portion hinged to the base portion and movable between open and closed positions; a recess in one edge of the case, the base portion having a first engagement member

within or adjacent the recess and the lid portion having a second engagement member within or adjacent the recess; and a releasable security member engageable with both the first and second engagement members to hold the case closed.

7. A case for enclosing information storage media comprising a base portion adapted to releasably hold the information storage media; a lid portion movable between an open and closed position; a recess in an outer wall of the casing; a security member; and a releasable security member which fits within said recess and inhibits removal of the security tag from the case.

8. A case for enclosing information storage media comprising a base portion adapted to releasably hold the information storage media; a lid portion and a hinge portion joining the base portion to the lid portion and a releasable security member slidable through an aperture in an edge of the case opposite the hinge portion to hold the case closed.

9. A case for enclosing information storage media comprising a base portion having a holding member to hold the information storage media; a lid portion movable between open and closed positions; a wrapping around the case; and a releasable security member insertable through the wrapping into the case to inhibit operation of the holding member.

10. A case for enclosing information storage media comprising a base portion having a holding member to hold the information storage media; a lid portion movable between open and closed positions; a releasable security member within the case to inhibit operation of the holding member and removable therefrom only when the case is open.

11. A case for enclosing information storage media comprising a base portion, and a lid portion attached to the base portion by a hinge portion, the base and lid portion being shaped to provide a recess in an edge of the case opposite the hinge portion when in the closed position, and a locking device insertable

within said recess to engage both the base portion and the lid portion to releasably hold them in the closed position.

12. Apparatus for holding information storage media comprising a base portion; a security tag; a releasable security member insertable within the base portion; and a locking device for locking the security member to the base portion, wherein access to the security tag is inhibited until the locking device is released to permit the security member to be withdrawn, or at least partially withdrawn, from the base portion.

13. Apparatus or a case as claimed in any preceding claim having a holding member for releasably holding a central aperture of disk shaped information storage media.

14. Apparatus or a case as claimed in claim 13 in which the holding member comprises one or more arms resiliently cantilevered from the or a base portion and extending radially inward towards a centre thereof with a button-like member provided at the inner end(s) of the arm(s) for engaging the central aperture of the disk-shaped information storage media.

15. Apparatus or a case as claimed in any preceding claim in which the releasable security member comprises at least one arm insertable through an aperture in the apparatus or case.

16. Apparatus or a case as claimed in claim 15 in which the releasable security member comprises a substantially flat head portion at the outer end thereof.

17. Apparatus or a case as claimed in claim 15 or 16 in which the releasable security member comprises a locking device which prevents removal of the member once it has been inserted to a given position until the locking device is released.

18. Apparatus as claimed in claim 17 in which the locking device comprises first and second parts arranged such that the second part can pass the first part when the member is inserted but engagement between the first and second parts prevents the second part moving past the first part in the opposite direction.

19. Apparatus or a case as claimed in claim 18 in which the first part comprises a resilient projection carried by the member and the second part comprises a substantially rigid projection on the apparatus or case.

20. Apparatus as claimed in any of claims 15-19 in which the releasable security member comprises a metal component the position of which can be altered by application of magnetic force to enable the member to be removed.

21. Apparatus or a case as claimed in claims 14 and 15, or any claim dependent on both claims 12 and 13, in which the said at least one arm fits beneath the resiliently cantilevered arm(s) when the releasable locking member is inserted within said aperture.

22. A case as claimed in any of claims 5-21 in which the releasable security member comprises a first arm for engaging a first slot in the base portion and a second arm for engaging a second slot in the lid portion.

23. A case as claimed in claim 22 in which the first and second arms extend from a head portion.

24. A case as claimed in claim 23 in which the first and second slots are located in a recess in the outer surface of the case, the arrangement being such that when the first and second arms are fully inserted in the respective slots, the head portion lies in said recess.

25. A case as claimed in claim 6 in which the releasable security member fits within the recess.

26. A case as claimed in claim 25 in which the releasable security member substantially fills the recess and has an external surface substantially coplanar with the said edge of the case.

27. A case as claimed in claim 25 or 26 in which the first and second engagement members each comprise at least one aperture at an end of the recess, the releasable security member comprising a locking device for engaging and disengaging the releasable security member with said apertures.

28. Apparatus or a case as claimed in any proceeding claim having a locking device in combination with a key for locking and unlocking the locking device.

29. Apparatus or a case as claimed in claim 28 in which the key is also designed to mechanically engage the releasable security member so it can be used to withdraw the releasable security member when the locking device ha been unlocked.

30. Apparatus or a case as claimed in claim 28 or 29 in which the key and/or the locking device comprise a magnet.

31. Apparatus or a case as claimed in claim 30 in which the magnet is arranged to actuate the locking device by moving a part thereof by magnetic force.

32. Apparatus or case as claimed in claim 30 or 31 in which the magnet is arranged to move a part which permits the locking device to be actuated by some other means.

33. A release device for use with apparatus or a case as claimed in any preceding claim having a releasable security member and a locking device for locking the security member to the apparatus or case.

34. A release device as claimed in claim 33 arranged to provide a first magnetic force in a first direction to release the locking device and to provide a second magnetic force in a second direction to at least partially withdraw the security member from the apparatus or case.

35. Apparatus or a case for holding information storage media substantially as hereinbefore described with reference to and/or as shown in one or more of the accompanying drawings.

36. A release device for use with apparatus as claimed in any preceding claim substantially as hereinbefore described with reference to and/or as shown in the accompanying drawings.

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Application No: GB 0027553.7 27 **Examiner:** Marian Challis
Claims searched: 1,13-24,28-36 **Date of search:** 21 March 2002

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Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.T): B8P PE2C, PT

Int Cl (Ed.7): G11B 33/04, E05B 73/00

Other: Online: PAJ, EPODOC and WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	EP 0653534 A	(SOFT SERVICE INC.) Figures 2-4, column 10 lines 28-46	1,13,15,17, 28,33,35, 36
X	EP 0364872 A	(NECCHI MODULAIRE MUSICA)	1,13,19,28, 33,35,36
X	EP 0211088 A	(FELSKOWSKY)	1,13,15,17, 20,28,29-36
X	WO 9510825 A	(VENDA SECURITY SYSTEMS INC.)	1,13,19,28, 33,35,36
X	US 5934114 A	(ALPHA ENTERPRISES INC.)	1,13,15,17, 18,19,22, 28,33,35, 36
X	US 5680782 A	(MG CO LTD.) Whole document	1;13,15,17, 18,28,29, 33,35,36
X	US 5209086 A	(PATACO AG) Whole document	1,13,15,17, 18-20,28-33,35,36

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
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